

QPL 13 PATCHING MATERIALS

SECTION A. ASPHALT PATCHING MATERIALS

SECTION A: HIGH PERFORMANCE COLD PATCH MATERIALS

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for asphalt cold-mix patching materials composed of a suitable aggregate and additives for the repair of both asphalt and concrete surfaces.

SPECIFICATIONS

M-108.10 and 100.02

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on both asphalt and concrete surfaces as directed by the Division of Materials and Tests. The cold patch material shall be installed in either November or December and the evaluation will continue through the end of May of the following year. At the completion of the evaluation period, if the test patch areas in both the concrete and asphalt surfaces have remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

NOTE: This procedure is currently under review by the Department and is subject to change.

SECTION A: ELASTOMERIC PATCHING MATERIALS HOT APPLIED

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for elastomeric patching materials used for patching potholes in asphalt and concrete pavements.

SPECIFICATIONS

None

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on an asphalt and/or concrete surface as directed by the Division of Materials and Tests. The patching material shall be left in the field for 6 months to 1 year, at the discretion of the Division. At the completion of the evaluation period, if the test patch area has remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

SECTION A: ELASTOMERIC PATCHING MATERIALS COLD APPLIED

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for elastomeric patching materials used for patching potholes in asphalt and concrete pavements.

SPECIFICATIONS

None

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on an asphalt and/or concrete surface as directed by the Division of Materials and Tests. The patching material shall be left in the field for 6 months to 1 year, at the discretion of the Division. At the completion of the evaluation period, if the test patch area has remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

SECTION B. CONCRETE PATCHING MATERIALS

SECTION B: RAPID SET CEMENTITIOUS PATCHING MATERIALS

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for rapid setting cementitious patching materials used in bridge and concrete repair.

SPECIFICATIONS

TDOT M 105.05 and 105.06

ASTM C-109

ASTM C-157

ASTM C-928

ASTM C-1042

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The product will be tested according to the above specifications and must meet the following requirements.

1. Compressive Strength:

Age	PSI
3 Hours	1000
1 Day	3000
7 Days	4000
28 Days Greater than 7 Days	

2) Length Change in Air: Age Allowable decrease % 28 Days -0.06

3) Slant Shear Hardened to Plastic Concrete

Age	PSI
1 Day	1000
7 Days	1500

NOTE: This procedure is currently under review by the Department and is subject to change.

LIST 13. SECTION B: HIGH PERFORMANCE COLD PATCH MATERIALS

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for asphalt cold-mix patching materials composed of a suitable aggregate and additives for the repair of both asphalt and concrete surfaces.

SPECIFICATIONS

M-108.10 and 100.02

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on both asphalt and concrete surfaces as directed by the Division of Materials and Tests. The cold patch material shall be installed in either November or December and the evaluation will continue through the end of May of the following year. At the completion of the evaluation period, if the test patch areas in both the concrete and asphalt surfaces have remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

NOTE: This procedure is currently under review by the Department and is subject to change.

SECTION B: TWO COMPONENT EPOXY TYPE PATCHING MATERIALS

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for two component-epoxy type patching materials used in bridge and concrete repair.

SPECIFICATIONS

ASTM C 881 and 882

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The product will be mixed according to the manufacturer's recommendations and must meet the following requirements.

Compressive Strength:

Age	PSI
3 Hours	1000
1 Day	3000
7 Days	4000

28 Days Greater than 7 Days

Slant Shear Hardened to Plastic Concrete

Age	PSI
1 Day	1000
7 Days	1500

SECTION B: COSMETIC REPAIR EPOXY TYPE PATCHING MATERIALS

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for epoxy type patching materials used to make cosmetic bridge and concrete repairs.

SPECIFICATIONS

ASTM C 881 and 882

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The product will be mixed according to the manufacturer's recommendations and must meet the following requirements.

Slant Shear Hardened to Plastic Concrete

Age	PSI
1 Day	1000
7 Days	1500

NOTE: This procedure is currently under review by the Department and is subject to change.

SECTION B: STRUCTURAL MATERIALS AND COMPONENTS

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for cementitious patching materials used in bridge and concrete repair.

SPECIFICATIONS

ASTM C-109
ASTM C-157
ASTM C-928
ASTM C-1042

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The product will be tested according to the above specifications and must meet the following requirements.

Compressive Strength:

Age	PSI
1 Day	3000
7 Days	4000

28 Days Greater than 7 Days

Length Change in Air:

Age	Allowable decrease %
28 Days	-0.15

Slant Shear Hardened to Plastic Concrete

Age	PSI
1 Day	1000
7 Days	1500

SECTION B: POLYMER-MODIFIED CEMENTITIOUS STRUCTURAL PATCHING VERTICAL AND OVERHEAD

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for polymer modified cementitious patching materials used for overhead and vertical structural repair of bridge members.

SPECIFICATIONS

ASTM C-109
ASTM C-928
ASTM C-1042

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and

a sample of the product being tested must be submitted to the Division of Materials and Tests.

The product will be tested according to the above specifications and must meet the following requirements. The product can be extended with aggregate as recommended by the manufacturer.

Compressive Strength:

Age	PSI
1 Day	2000
7 Days	4000
28 Days	Greater than 7 Days

Length Change in Air:

Age	Allowable decrease %
28 Days	-0.15

Slant Shear Hardened to Plastic Concrete

Age	PSI
1 Day	1000
7 Days	1500

4. Working Time

10 minutes, minimum

SECTION B: ELASTOMERIC PATCHING MATERIALS HOT AND COLD APPLIED

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for elastomeric patching materials used for patching potholes in asphalt and concrete pavements.

SPECIFICATIONS

None

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on an asphalt and/or concrete surface as directed by the Division of Materials and Tests. The patching material shall be left in the field for 6 months to 1 year, at the discretion of the Division. At the completion of the evaluation period, if the test patch area has remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

SECTION B: METHACRYLATE BINDER RESIN SYSTEM

PROCEDURES

GENERAL

This evaluation procedure outlines the Department's approval process for methacrylate binder resin systems used for sealing cracks in concrete surfaces.

SPECIFICATIONS

TDOT 604CR
ASTM C 882

PROCEDURES

A completed Product Evaluation Form, MSDS sheets, if applicable, product data information and a sample of the product being tested must be submitted to the Division of Materials and Tests.

In this process of testing methacrylate resin, take a 3"x 6" (75x 150-mm) portland cement mortar cylinder and cut in half at 30 degree angle. Clean both surfaces of cut halves, by either brushing or sandblasting. Place the two halves of the specimen together, forming a gap approximately 0.02in. (0.5mm). Silicone the periphery of the specimen close to each end. Place additional silicone along joint. Support the specimen so that the cylinder is vertical. Leave a slit exposed approximately $\frac{3}{4}$ in. (20 mm) of the upper portion of the joint. Slowly pour resin-bonding system into the exposed joint until it is completely filled. Keep the joint vertical for 48 hours. After suitable curing of the bonding agent, the test is performed by determining the compressive strength of the composite cylinder.

A minimum compressive strength of 1500 psi must be achieved for approval of the product.

